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ABSTRACT

In its second year, Project COM-TECH's (Bilingual Computer- and Technology-Oriented Program) primary goal was to provide two high schools with bilingual individualized instruction, through enrichment, to limited English proficient (LEP) students (222 Spanish-speaking and 96 Haitian Creole/French-speaking) of varying native language proficiency and academic preparedness. The program provided supplementary instruction in English as a second language (ESL) and native language arts, and in mathematics, science, and social studies taught in the native language. The core of the project design was a bilingual resource/computer center at each site that provided computer instruction, tutored students, performed career advising, counselled, helped students to prepare for exams, sponsored career- and culture-related field trips, and exhibited cultural materials and classwork. A basic skills class for parents was also offered at both sites. Analysis of student data indicates: (1) the English language development objective was not met; (2) data were not available for native language achievement tests, but students had high passing rates in language arts courses; (3) content-area achievement objectives were not met; and (4) the attendance rate was higher than that of mainstream students. Recommendations for improvement are given. (MSE)

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O.E.A. Evaluation Section Report

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Grant Number: G00-852-5023

# PROJECT COM-TECH

(Bilingual Computer- and Technology-Oriented Program)

1986-1987

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## A SUMMARY OF THE REPORT

In its second year of a three-year funding cycle under Title VII of the Elementary and Secondary Education Act (E.S.E.A.), Project COM-TECH's primary goal was to provide bilingual individualized instruction, using an enrichment approach, to 319 Spanish- and Haitian Creole/French-speaking students of varying levels of English- and native-language proficiency and academic preparedness. Two hundred and twenty-two Spanish-speaking students participated in the project at Bushwick High School, in Brooklyn, and 96 Haitian Creole/French-speaking students participated at Louis G. Brandeis High School, in Manhattan.

The program provided supplementary instruction in English as a second language (E.S.L.) and native language arts, and in mathematics, science, and social studies taught in the native languages.

The core of the project design was a bilingual resource/computer center at both high schools. The centers provided computer instruction, tutoring, career advising, counseling, and help in preparing for exams. They also sponsored career- and culture-related trips, and were exhibition centers for Haitian and Hispanic cultural materials and class work on career skills and computer literacy.

At Bushwick, Title VII funds supported a full-time resource specialist and a full-time paraprofessional, both of whom were assigned to the enrichment center. Title VII also funded a resource specialist and a paraprofessional at Brandeis. However, because Brandeis lacked Haitian Creole-speaking teachers, the resource specialist taught bilingual math and science. All staff members met regularly with a program coordinator who visited both sites and reported to the project director. Day-to-day supervision of the COM-TECH staff members was provided by the assistant principals for foreign languages at both schools.

Title VII-sponsored staff development activities consisted of university courses and on-site training sessions on the educational uses of the computer. Project staff members also attended monthly departmental meetings.

An innovative aspect of the program was its basic skills class for parents. Because Bushwick High School was located in a high crime area, which made it unsafe to offer evening classes there, the class was offered instead at St. Brigid's Church, located nearby. Brandeis' basic skills class was offered on Saturday at a local community center.

Program objectives were assessed in English language development, (Criterion Referenced English Syntax Test [CREST]); native language arts (teacher-made exams); mathematics, science, social studies, business/vocational courses (teacher-made exams);

attendance (school and program records); staff development (school records); and parental involvement (attendance at school meetings). Analysis of the data indicates the following:

- Sixty-five percent of program students in the fall and 61 percent in the spring mastered an average of at least one CREST objective per month. Thus, the proposed criterion of 85 percent was not met.

- Data were not provided for native language achievement tests. Thus, the objective that 75 percent of program students will demonstrate a significant increase in native language achievement could not be assessed as stated. However, overall, students at both sites achieved high passing rates in their native language arts courses.

- The program objective of a 75 percent passing rate for students enrolled in content-area courses was not achieved.

- The attendance rate of program students was significantly higher ($p < .05$) than that of mainstream students, thus meeting the program objective.

The following recommendations are offered as suggestions for improving Project COM-TECH's future operations:

- The resource specialist at Brandeis should be freed from his teaching responsibilities so he can devote all his time to the resource/computer center -- as was envisaged in the project proposal.

- The project might benefit if the resource specialists and paraprofessionals at both sites could meet face-to-face to share experiences and ideas. Given the constraints of distance, finances, and time, meetings could be scheduled at the central office in the summer, when the resource specialists are there for curriculum development work.

- Lack of space was a problem for the computer/resource centers at both Brandeis and Bushwick -- especially the latter. It is recommended that Bushwick try to find larger quarters for their center, and that the Brandeis administration remove the lathes which clutter their center.

- Data to evaluate the proposed objectives in the area of native language achievement should be provided as proposed.

- The project should revise its objectives in E.S.L. and the content areas to reflect those commonly used by Title VII high school programs in New York City.

ACKNOWLEDGEMENTS

The production of this report, as of all Office of Educational Assessment Bilingual Education Evaluation Unit reports, is the result of a cooperative effort of regular staff and consultants. In addition to those whose names appear on the cover, Arthur Lopatin had edited the manuscripts. Margaret Scorza has reviewed and corrected reports, and has coordinated the editing and production process. Shelley Fischer and Martin Kohli have spent many hours, creating, correcting, and maintaining data files. Maria Grazia Asselle, Rosalyn Alvarez, Donna Plotkin, and Milton Vickerman have interpreted student achievement and integrated their findings into reports. Finally, Betty Morales has worked intensively to produce, duplicate, and disseminate the completed documents. Without their able and faithful participation, the unit could not have handled such a large volume of work and still have produced quality evaluation reports.

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PROJECT COM-TECH

(Bilingual Computer- and Technology-Oriented Program)

| | |
|---|---|
| Central Office: | 1171 65th Street<br>Brooklyn, New York 11219 |
| Sites: | Bushwick High School<br>400 Irving Avenue<br>Brooklyn, New York 11237 |
| | Louis G. Brandeis High School<br>145 West 84th Street<br>New York, New York 10024 |
| Year of Operation: | 1986-87 Second year of a Three-year Funding Cycle |
| Languages of Instruction: | Spanish, Haitian Creole/French |
| Number of Students Served: | 319 |
| Project Director: | Angelo Gatto |
| Project Coordinator: | Yanick Morin |

## I. OVERVIEW

In the 1986-87 school year, the Bilingual Computer- and Technology-Oriented Program (Project COM-TECH) completed its second year of a three-year Title VII funding cycle. Its primary objective was to provide individualized bilingual instruction, using an enrichment approach, to limited English proficient (LEP) students who had widely varying English- and native-language abilities and levels of academic preparedness. In addition, the project was designed to instill in its students a sense of pride in their native cultures through exposure to their arts, histories, and languages.

The project was designed to supplement, not supplant, the bilingual services already available at the two participating high schools: Bushwick High School, located in an impoverished,

high crime area of Brooklyn; and Louis D. Brandeis High School, located on Manhattan's gentrified Upper West Side. At Bushwick, COM-TECH served 222 Hispanic students, mainly from Puerto Rico and the Dominican Republic. At Brandeis, the project served 96 Haitians.

At Bushwick, Title VII funds provided supplementary instruction in English as a second language (E.S.L.), native language arts, bilingual tutoring, computer training, and career orientation. At Brandeis, students received tutoring, instruction in E.S.L., global history (in French and English), and math and biology (in Haitian Creole). In addition, parents of project students at both sites were offered basic skills classes on a regular basis.

A key element of Project COM-TECH at each site was a resource/computer center. Title VII supplied the two staff members, computer equipment, and curricular materials for each center, and tax-levy funds paid for furniture and other supplies. Both centers provided training in computer use, tutoring, career advising, and counseling. The centers also were places where Haitian and Hispanic cultural materials and classwork on career skills and computer literacy were on exhibit.

Title VII staff at each resource/computer center consisted of a resource specialist and a paraprofessional. Although both resource specialists were to have worked full time at the centers, the lack of bilingual teachers at Brandeis forced the specialist there to devote three periods a day to teaching math

PROJECT COM-TECH

(Bilingual Computer- and Technology-Oriented Program)

1986-1987

# OEA Evaluation Report

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and science classes.

The project director noted that this diversion had been detrimental to COM-TECH's success at this site. He explained that it had been necessary because Brandeis had no formal bilingual program for Haitian students, and that no Haitian Creole-speaking teachers had been recruited. However, he added that the school administration was attempting to recruit Haitian Creole-speaking content-area teachers for the coming semester, and that, if successful, this would enable the resource specialist to devote all his time to the responsibilities outlined in the COM-TECH project proposal. However, when the school principal was questioned about this matter he declared that the resource specialist seemed sufficient to meet Haitian students' content-area needs and that the recruitment of additional Haitian Creole-speaking teachers was not being contemplated. He pointed out that since Brandeis' Haitian enrollment had declined during the early 1980s, the school had been following a policy of providing bilingual content-area instruction on a demand-only basis, with the resource specialist doubling as classroom teacher. In this context, it also was noted that in addition to the Creole-speaking resource teacher, Brandeis had a French-speaking social studies teacher.

Project COM-TECH's resource specialists were both highly qualified and experienced in bilingual education. The Bushwick resource specialist had directed a federally funded program to train bilingual teachers at Long Island University for six years.

During the year under review, with the support of the project director and the assistance of a paraprofessional, she organized and coordinated teacher training workshops, prepared computer literacy and E.S.L. teaching curricula, helped coordinate Parent Teacher Association (P.T.A.) meetings, and provided tutoring and supportive services.

The resource specialist at Brandeis had a Ph.D. in French and was qualified to teach mathematics and science, as well as the Haitian Creole language. He was extremely knowledgeable about the ongoing debate within the Haitian community about whether Creole or French should be used as the language of instruction in content-area courses and taught as the native language. Highly literate in both languages, he taught Haitian Creole at meetings of the Haitian students' club.

COM-TECH's on-site staff members worked with a project coordinator who was based at the central office and reported to the program director. The program coordinator made frequent visits to the schools, and was reportedly available whenever needed. However, there were no face-to-face meetings between members of the project staff at Brandeis and Bushwick.

## II. STUDENT CHARACTERISTICS

Bushwick High School is located in a deteriorated neighborhood with a reputation for violent crime. According to the project staff, students frequently were found carrying weapons, such as knives, which they claimed they needed for self defense while traveling to and from school. In 1986-87, Bushwick's enrollment of 2,441 included 1,728 Hispanics and 680 blacks, with the remaining students white, Asian, or American Indian.*

Forty-one percent of Bushwick's students qualified for the free-lunch program.**

The resource specialist at Bushwick noted that the school's Hispanic population had once been predominantly Puerto Rican but now includes significant numbers of students from the Dominican Republic and Central or South America. The resource specialist described project students in general as being well prepared in the content areas, but with low levels of English proficiency.

Brandeis High School is located on Manhattan's West Side, a neighborhood whose gentrification has forced large numbers of Haitians to relocate to Queens and Brooklyn. Until very recently, however, this did not cause a significant drop in the

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*Source. Pupil Ethnic Composition Report, Annual School Census, October 1986, Office of Student Information Services, Board of Education of the City of New York.

**Source. 1987-88 Poverty Components Listing, Office of Student Information Services, Board of Education of the City of New York, June 17, 1987.

number of Haitians attending the school because it also draws Haitians from upper Manhattan, which has not yet been gentrified. However, in response to overcrowding, in 1985-86 Brandeis inaugurated a policy of refusing "over-the-counter"* admissions, and referring them to Martin Luther King High School. This caused a sharp drop in the number of Haitian and Hispanic LEP students attending the school. Whereas in 1984-85, 1,196 LEP students (largely Haitian and Hispanics) were enrolled at Brandeis, in 1985-86 there were only 479.

During the year under review, Brandeis' enrollment totalled 2,792, of whom 2,765 were Hispanic and black, with the rest either white or Asian. Forty percent of the students were eligible for the free-lunch program, and 479 were LEP.**

COM-TECH's total enrollment was 319, with 265 students attending in the fall and 294 in the spring. (In other words, 240 students were enrolled both semesters; 25 were enrolled in the fall only; and 54 were enrolled in the spring only.) Data were also received for 18 students who had been in the program during the previous year but left before September 1986: seven graduated; four transferred to another school; two left the United States; one was mainstreamed; one obtained a high school equivalency diploma; and three left for unspecified reasons.

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*Over-the-counter admissions are students who enroll in high school without having attended junior high school in New York.

**Source. High School Data Report Consent Decree/Lau Plan, Fall 1986, Division of High Schools, Board of Education of the City of New York.

Sixty-two students left the program during the academic year. (See Table 1.)

TABLE 1

Number of Students Leaving the Program

| Reason For Leaving | Left By January 1987 | Left By June 1987 | Percent of Total |
|---|---|---|---|
| Mainstreamed | - | 1 | 1.6 |
| Transferred | 12 | 10 | 35.5 |
| Left U.S. | 7 | 8 | 24.2 |
| Graduated | 1 | 6 | 11.3 |
| Other Reasons | 5 | 12 | 27.4 |
| TOTAL | 25 | 37 | 100.0 |

- A total of 62 students left the program during the academic year.
- Twenty-two students transferred to another school.

Of the 294 students who were served in the spring, 108 had been in the program for one year or less, and 185 had been enrolled for two years. (Data were missing for one student.)

Most COM-TECH students came from the Dominican Republic (28 percent), Puerto Rico (21 percent), or Haiti (30 percent). Table 2 presents the distribution of program students by country of birth, and Figure 1 presents the percent of students by native language.

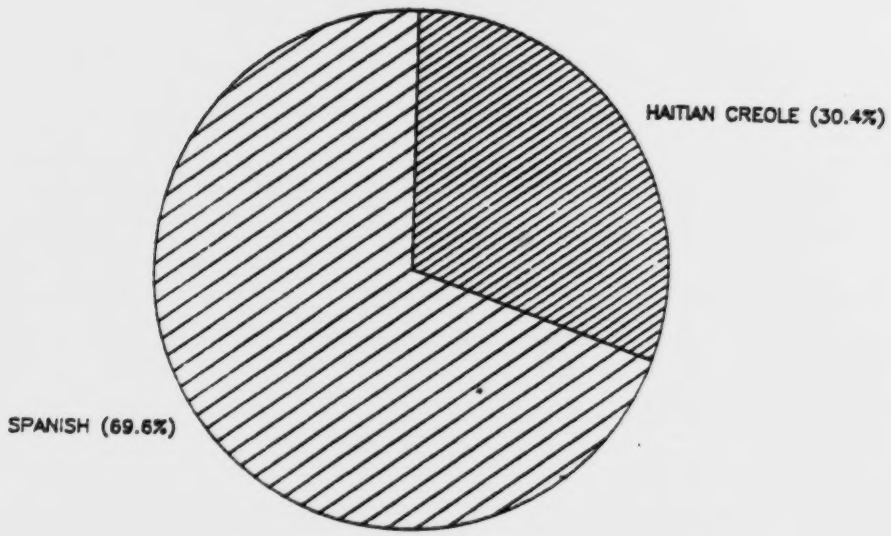
TABLE 2

Number and Percent of Program Students by Country of Birth

| Country of Birth | Number | Percent |
|---|---|---|
| Haiti | 96 | 30.1 |
| Dominican Republic | 88 | 27.6 |
| Puerto Rico | 66 | 20.7 |
| Ecuador | 16 | 5.0 |
| Honduras | 8 | 2.5 |
| El Salvador | 7 | 2.2 |
| Nicaragua | 5 | 1.6 |
| Guatemala | 2 | .6 |
| Costa Rica | 2 | .6 |
| Panama | 2 | .6 |
| Colombia | 2 | .6 |
| Mexico | 1 | .3 |
| Bolivia | 1 | .3 |
| U.S.A. | 23 | 7.2 |
| | 319 | 100.0 |

- The majority of program students were born in Spanish-speaking countries (63 percent).
- The next largest subgroup was born in Haiti (30 percent).

FIGURE 1
PROJECT COMTECH
DISTRIBUTION BY NATIVE LANGUAGE




Female students slightly outnumbered males (54.5 percent to 45.5 percent), but the percentage of male students in grade twelve was greater than that of females (63.4 percent to 46.4 percent).

According to the resource specialist at Brandeis, most program students were recent arrivals to the United States. The parents of some students had sent them to stay with relatives in New York so their education would not be interrupted by the political turmoil engulfing Haiti. Others had been preceded by their parents, who needed one or two years to become financially secure enough to support their children in this country. In the latter case, the loss of parental control and/or financial support sometimes led the youngsters left behind to drop out of school; consequently, when they arrived in this country they were several years behind grade level.

Table 3 presents the distribution of COM-TECH students by age and grade. Of the 307 students for whom data were available, 90 students (29 percent) were in grade nine; 72 students (23 percent) were in grade ten; 90 students (29 percent) were in grade eleven; and 55 students (18 percent) were in grade twelve. Overall, 65 percent of the students were overage for their grade placement. When examined by site, Brandeis had the higher percentage: 87 percent of the program students at Brandeis were overage, while 57 percent of the program students at Bushwick were overage. At both sites, the highest percentage of overage students was in the ninth grade.

TABLE 3

Number of Program Students by Age* and Grade

| Age | Grade 9 | Grade 10 | Grade 11 | Grade 12 | Total |
|---|---|---|---|---|---|
| 14 | 2 | 1 | 0 | 0 | 3 |
| 15 | 16 | 7 | 0 | 0 | 23 |
| 16 | 28 | 18 | 11 | 3 | 60 |
| 17 | 24 | 18 | 26 | 7 | 77 |
| 18 | 15 | 14 | 30 | 15 | 74 |
| 19 | 2 | 7 | 16 | 17 | 42 |
| 20 | 3 | 7 | 3 | 9 | 22 |
| 21 | 0 | 0 | 6 | 2 | 8 |
| TOTAL | 90 | 72 | 92 | 53 | 307** |

All Overage Students

| | | | | | |
|---|---|---|---|---|---|
| Number | 72 | 46 | 55 | 28 | 201 |
| Percent | 80.0 | 63.8 | 61.1 | 50.9 | 65.4 |

Overage Students at Bushwick High School

| | | | | | |
|---|---|---|---|---|---|
| Number | 46 | 33 | 26 | 14 | 119 |
| Percent | 75.4 | 63.4 | 44.0 | 36.8 | 56.6 |

Overage Students at Brandeis High School

| | | | | | |
|---|---|---|---|---|---|
| Number | 26 | 13 | 27 | 16 | 82 |
| Percent | 92.8 | 68.4 | 87.0 | 100.0 | 87.2 |

Note. Numbers in bold area reflect expected age range for grade.

*Age on June 30, 1987.
**Data were missing for 12 students.

- The majority (65.4 percent) of program students were overage for their grade placement.
- The highest percentage of overage students was in grade nine (80.0 percent); the lowest percentage was in grade twelve (50.9 percent).
- The Haitian population at Brandeis was 87 percent overage.

Tables 4 and 5 present the educational backgrounds of the students at Bushwick and Brandeis, respectively. Although the students' mean years of total education were similar at both sites (10.6 at Bushwick and 10.7 at Brandeis), their instructional histories varied, particularly in the lower grades. Ninth-grade students at Bushwick had an average of three years of education in the United States, while ninth graders at Brandeis had an average of only 1.8 years of education in this country. Only two ninth-grade students at Bushwick had fewer than eight years of prior education, but 11 ninth graders at Brandeis (40 percent of the program students in this grade) had fewer than eight years of schooling.

The resource specialist and paraprofessional at Brandeis both pointed out that the transition from Haiti's authoritarian classroom culture -- which stresses rote learning and unquestioning obedience to the teacher -- to the freewheeling environment of the American classroom was often profoundly disorienting, and sometimes led to inappropriate behaviors. They also noted that the use of Creole rather than French as the classroom language also undermined some youngsters' respect for authority.

The students' perception of the relative status of the two languages is typical of the attitudes of Haitian students and their parents throughout the city. French was the sole official language of Haiti for over two centuries, until March 1987, when, in a plebiscite, the Haitian people approved a new constitution

TABLE 4

Students' Years of Education by Grade

**BUSHWICK HIGH SCHOOL**

| | Total Years of Education | | | | | | | Years Education Native Country | | Years Education United States | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Grade | <8 | 9 | 10 | 11 | 12 | >12 | Total | Mean | S.D. | Mean | S.D. |
| 9 | 2 | 30 | 23 | 5 | 0 | 0 | 60 | 6.4 | 2.5 | 3.0 | 2.6 |
| 10 | 0 | 3 | 33 | 12 | 1 | 1 | 50 | 7.4 | 1.8 | 2.8 | 1.7 |
| 11 | 0 | 0 | 6 | 46 | 6 | 1 | 59 | 7.7 | 1.9 | 3.3 | 1.9 |
| 12 | 0 | 0 | 0 | 5 | 26 | 5 | 36 | 8.5 | 1.7 | 3.5 | 1.6 |
| TOTAL | 2 | 33 | 62 | 68 | 33 | 7 | 205* | 7.4 | 2.2 | 3.2 | 2.1 |

*Data were missing for 15 students.

- The average number of years of education in the native country ranged from 6.4 for ninth graders to 8.5 for twelfth graders.
- Ninth graders had an average of three years of education in the U.S., whereas the corresponding mean for twelfth graders was 3.5.

TABLE 5

Students' Years of Education by Grade

**BRANDEIS HIGH SCHOOL**

| | Total Years of Education | | | | | | | Years Education Native Country | | Years Education United States | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Grade | <8 | 9 | 10 | 11 | 12 | >12 | Total | Mean | S.D. | Mean | S.D. |
| 9 | 11 | 5 | 7 | 4 | 1 | 0 | 28 | 7.0 | 2.3 | 1.8 | 0.9 |
| 10 | 0 | 2 | 5 | 8 | 4 | 0 | 19 | 8.9 | 1.3 | 1.8 | 1.2 |
| 11 | 0 | 0 | 3 | 8 | 15 | 5 | 31 | 8.4 | 1.5 | 3.2 | 1.2 |
| 12 | 0 | 1 | 0 | 0 | 5 | 9 | 15 | 7.8 | 1.4 | 4.3 | 0.9 |
| TOTAL | 11 | 8 | 15 | 20 | 25 | 14 | 93* | 8.0 | 1.9 | 2.7 | 1.9 |

*Data were missing for four students.

- The average number of years of education in the native country ranged from 7.0 to 8.9.
- Ninth and tenth graders had, on the average, 1.8 years of education in the United States, whereas the corresponding mean for twelfth graders was 4.3.

giving Creole and French co-equal status. For centuries, French has been associated with "power, authority, formal knowledge, and high social status," and has been essential for social mobility.* Despite recent changes (including the introduction of Creole into elementary school classrooms), although just two to five percent of Haiti's people are fluent in French, its cultural prestige remains strong, while Creole continues to have low status because of its origins as the unwritten language of Haiti's rural majority. The appropriate role of the two languages currently is a topic of hot debate within the Haitian community.

According to the resource specialist, if Brandeis' Haitian students and their parents were asked to choose which of the two languages should be used for bilingual content-area courses and native language arts, despite their generally poor-to-nonexistent knowledge of French, most would choose French because they believe opting for Creole is tantamount to admitting low status. To support this assertion, the resource specialist said that most parents took umbrage when he addressed letters to them in Haitian Creole, complaining they had been treated as "ignorants." But he said that this initial resistance to Creole diminished as parents became more informed about bilingual education in general and COM-TECH in particular.

Both the resource specialist and the social studies teacher

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*Susan Buchanan Stratford, "Language and Identity: Haitians in New York City," in Caribbean Life in New York City: Sociocultural Dimensions. ed. Constance R. Sutton and Elsa M. Chaney (New York: Center for Migration Studies, 1987).

reported that although a number of students had some knowledge of spoken French, most had serious problems reading and writing the language. The social studies teacher explained that he gave class exams in both English and French because some students were more comfortable with English.

## III. FINDINGS

The evaluation findings for the 1986-87 academic year include objectives measurable by test results and those based on an examination of program material and records, site visits, and interviews with school personnel. These objectives were proposed to and accepted by the Office of Bilingual Education and Minority Languages Affairs, U.S. Department of Education.

ENGLISH AS A SECOND LANGUAGE

-- Eighty-five percent of the target students will demonstrate a significant increase in English-language proficiency as indicated by mastery of one English syntax objective per twenty days of instruction.

Students' initial E.S.L. level was determined by an examination and teacher recommendations. Depending on their placement level, students received two or three periods of E.S.L. per day.

A member of the evaluation team visited an introductory-level E.S.L. class at Bushwick. The text used was Pathways to English, Book 1. The aim of the class was to learn to use possessive pronouns. The students were inattentive and ill-behaved. They frequently disrupted the teacher's lecture by speaking among themselves, and they replied in a disorderly fashion to the teacher's questions. In addition, the class suffered three interruptions, two from administrative personnel in search of a student, and one from an announcement over the public-address system. Despite the teacher's continual attempts

to maintain discipline, the students were only sporadically attentive. Some appeared not to understand his directions, since on several occasions students were observed translating for their peers. The teacher used sets of multi-colored wooden blocks, which he distributed to the students, to aid in his discussion of possessives. As a review, the teacher administered a quiz at the end of the class.

Interviewed after class, the teacher reported that, as far as possible, he geared his vocabulary to themes and topics familiar to students in order to stimulate their interest. In a separate interview, the resource specialist said that E.S.L. and regular English classes had not been well coordinated and that this had contributed to low achievement levels by mainstreamed students.

The E.S.L. class observed at Brandeis consisted of Haitian and Hispanic students. The aim of the class was to learn to tell time in English. Students seemed attentive and orderly, and worked on printed worksheets while the teacher walked around the class attending to individual needs. Interviewed after class, the teacher reported that many students had difficulty learning class routines, such as the "do work" system, and that most of students worked after school hours, leaving them little time to do their homework.

Student Achievement in E.S.L.

The assessment instrument used to evaluate the objective in this area was the Criterion Referenced English Syntax Test* (CREST). The CREST was developed by the New York City Public Schools to measure mastery of the syntax skills presented in the E.S.L. curriculum. The CREST uses four items to measure each skill, and mastery is achieved when three of the four items are answered correctly. The test has three levels: beginning (1), intermediate (2), and advanced (3). Levels 1 and 2 each measure mastery of 25 skills, while Level 3 measures mastery of 15 skills.

The CREST was administered at the beginning and the end of each semester. A mastery score to indicate gains was computed for each student by calculating the difference between pretest and posttest. The number of months of instruction between testings was computed for each student by multiplying the number of months between testings by the student's attendance rate. The number of skills mastered per month were calculated by dividing the mean mastery by the mean number of months of instruction

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*The Criterion Referenced English Syntax Test (CREST) was developed by the Board of Education of the City of New York to measure mastery of instructional objectives of the E.S.L. curricula, and thus was constructed to maximize content validity. The test contains four items per curricular objective, and mastery of an objective is achieved when three of these items are answered correctly. The test measures mastery of 25 objectives at Levels 1 and 2, and 15 objectives at Level 3. The Kuder-Richardson Reliability Estimates for pretest and posttest administrations of the three levels of the CREST are:

Level 1 -- pretest (.91)/posttest (.96)
Level 2 -- pretest (.94)/posttest (.95)
Level 3 -- pretest (.91)/posttest (.91)

between testings.

Table 6 presents the test results for students who were pretested and posttested with the same level. Of the students who were reported to be taking E.S.L. classes (levels 1,2, and 3), completed data (levels, pretest score, and posttest score) were available for 53 percent in the fall and 62 percent in the spring.

Sixty percent of program students in the fall and 61 percent in the spring mastered an average of at least one English syntax objective per twenty days of instruction. Thus the program objective that 85 percent of program students would achieve an average of one CREST objective per month was not met. This objective was met only during the fall semester at Brandeis.

However, on the average, program students achieved 1.2 CREST objectives per month in the fall and 1.6 in the spring (see Table 6), a performance level above the criterion generally set by Title VII high school bilingual programs in New York City.

TABLE 6

Results of the Criterion Referenced English Syntax Test

| Test Level | Number of Students | PRETEST Mean | PRETEST S.D. | POSTTEST Mean | POSTTEST S.D. | MASTERY Mean | MASTERY S.D. | Mean MASTERY Per Month |
|---|---|---|---|---|---|---|---|---|
| | | | | FALL | | | | |
| 1 | 29 | 10.1 | 6.7 | 15.0 | 7.3 | 4.9 | 3.4 | 1.8 |
| 2 | 47 | 14.4 | 6.2 | 18.8 | 5.4 | 4.4 | 3.7 | 1.6 |
| 3 | 17 | 9.3 | 3.1 | 11.5 | 2.9 | 2.2 | 1.5 | 0.8 |
| TOTAL | 93 | 12.1 | 6.3 | 16.3 | 6.4 | 4.2 | 3.4 | 1.5 |
| | | | | SPRING | | | | |
| 1 | 29 | 9.6 | 6.1 | 13.4 | 7.5 | 3.8 | 4.4 | 1.5 |
| 2 | 52 | 12.9 | 6.3 | 18.0 | 5.7 | 5.1 | 3.7 | 1.9 |
| 3 | 26 | 9.6 | 3.8 | 13.3 | 2.9 | 3.7 | 3.3 | 1.4 |
| TOTAL | 107 | 11.2 | 5.9 | 15.6 | 6.2 | 4.4 | 3.8 | 1.6 |

• On average, students mastered more than one CREST objective per month of instruction.

NATIVE LANGUAGE ARTS

-- Seventy-five percent of the Spanish-dominant participants will demonstrate a significant increase in Spanish-language achievement as indicated by significant improvement at the .05 level of statistical significance when results of La Prueba de Lectura are analyzed using a correlated "t"-test.

-- Seventy-five percent of the Haitian Creole-dominant participants will demonstrate a significant increase in native language achievement as indicated by significant improvement at the .05 level of statistical significance when results of a teacher-made instrument are analyzed using a correlated "t"-test.

At both Brandeis and Bushwick, the assistant principal for foreign languages was in charge of native language arts instruction. At Brandeis, to satisfy the expectations of students and their parents, French (rather than Creole) was offered as the native language -- despite the fact that most of the students had, at best, only a rudimentary knowledge of it. In addition, for the most part using materials he has developed himself, the resource specialist offered optional Creole language instruction.

At Bushwick, a beginning-level Spanish native language arts class was observed by a member of the evaluation team. The subject was syntax. Despite its large size, the class was very orderly because the teacher was a strict disciplinarian. She also was well organized and clear-spoken. Consequently, most of the students appeared to understand the subject matter, and the level of participation was high.

Achievement in Native Language Arts

No data were provided on either La Prueba de Lectura or teacher-made instruments. Thus, the objective could not be assessed as stated. However, students' passing rates in native language arts classes were available and are presented in Table 7. Overall, students achieved high passing rates at both sites: 77 percent at Brandeis and 93 percent at Bushwick.

TABLE 7

Students' Passing Rates in
Native Language Arts Courses

| | FALL | | SPRING | | TOTAL |
|---|---|---|---|---|---|
| School (Language) | Number of Students | Percent Passing | Number of Students | Percent Passing | Overall Passing Rate |
| Brandeis (French) | 18 | 100.0 | 35 | 65.7 | 77.3 |
| Bushwick (Spanish) | 111 | 92.8 | 110 | 92.7 | 92.7 |
| TOTAL | | 93.8 | | 86.1 | 89.7 |

- Students achieved high passing rates in native language arts at both sites.

CONTENT-AREA SUBJECTS

-- At least 75 percent of the students enrolled in mathematics, science, social studies, and business/vocational courses will score at or above the 75 percent passing criterion each semester.

Bushwick seemed to have an adequate number of bilingual teachers in all subject areas, including math and science, the two subjects where the citywide shortage of bilingual teachers is most severe. At Brandeis, a member of the social studies department taught one American history class in French, and the resource specialist taught one algebra class and one biology class in a combination of Haitian Creole and French.

A member of the evaluation team observed the biology Haitian Creole/French biology class. Twenty-one students of an enrollment of 22 attended. The aim of the class was to study the respiratory system. Although the resource specialist lectured in both languages, all written materials were in French, largely owing to the lack of adequate Creole nomenclature. The students were attentive and orderly. They seemed to be interested in the subject matter, asked frequent questions, and volunteered answers. With the exception of one student who expressed himself in fluent French, all the students used Haitian Creole to ask questions. Interviewed after class, the resource specialist said that the same linguistic mix was used in the math class. He also said that in both classes he continually had to choose between French, which elicited greater respect but was less well understood, and Haitian Creole, for which the converse held.

Brandeis' French-language social studies class was also

observed by a member of the evaluation team. Students were shown a videotape on the life and times of Dr. Martin Luther King, Jr. Since the video was in English, the teacher first provided a French-language overview of the topic. He also stopped the video frequently to translate hard-to-understand passages. Students appeared respectful and interested, but they showed little initiative. Some students were observed translating portions of the video into Haitian Creole for their peers.

When the video was over, the teacher wrote several questions on the blackboard in English. Many students requested translations to French, which they seemed to understand. But when he was interviewed, the teacher reported that the students had difficulties with French, especially in written assignments. He reported that he gave the students a choice of English and French for their homework and exams, but that they had even more problems with English.

A member of the evaluation team visited an algebra and a biology class at Bushwick. In both cases, there was an excellent rapport between teachers and students. Classes were conducted in Spanish, although key concepts were translated into English. The biology class aimed to analyze the process of reproduction. Students appeared interested and participated frequently. The algebra class was about simple equations. The students seemed to understand the subject matter well, and were eager to participate, often insisting that the teacher let them solve equations on the blackboard.

Achievement in Content-Area Subjects

Overall, the proposed objective of 75 percent of the students achieving a 75 percent passing grade was not achieved. However, had the passing criterion been 65 percent (as it is for most New York City high school courses) the objective would have been surpassed in two areas: over 75 percent of the students in social studies and business/vocational courses achieved a grade of 65 percent or higher. (Students' passing rates in content-area subjects are presented by school in Appendix A.)

TABLE 8

Students' Passing Rates in Content-Area Courses

| | FALL | | SPRING | | | |
|---|---|---|---|---|---|---|
| Course | Number of Students | Percent Passing with 75% | Number of Students | Percent Passing with 75% | Overall Passing With 75% | Overall Passing With 65% |
| Mathematics | 186 | 29.0 | 208 | 26.9 | 27.8 | 60.1 |
| Science | 113 | 31.9 | 94 | 37.2 | 34.3 | 70.0 |
| Social Studies | 206 | 40.8 | 209 | 43.1 | 41.9 | 80.7 |
| Business/ Vocational | 70 | 55.7 | 85 | 50.6 | 52.9 | 90.3 |
| Overall Passing Rate per Semester | | 37.0 | | 37.5 | 37.3 | 73.1 |

NOTE: Mathematics courses range from fundamental math I to computer math; science courses range from general science to physics; social studies courses range from global history to advanced placement; business/vocational courses include accounting and vocational (career-related skills).

- Overall, the proposed objective of 75 percent of the students achieving a 75 percent passing grade was not met.

PARENTAL INVOLVEMENT

-- At least 30 percent of the students' parents will participate in open school meetings each year.

Overall, the program objective was met in this area. Parental participation was reported higher at Bushwick than at Brandeis. Because Bushwick's environs were considered unsafe after 4 P.M., evening basic-skills classes for the parents of the school's Project COM-TECH students were held at St. Brigid's Church, a well-known community center located in a more secure part of the neighborhood. Because of budgetary constraints, only one level could be offered. This was reported to have discouraged many of the 60 parents who originally had registered from attending regularly because they felt the class was either too elementary or too advanced. (Attendance was reported to have ranged from 20 to 25.) The resource specialist helped to organize the classes and provided a course outline. (See Appendix B.)

According to the resource specialist, the staff of the bilingual program cooperated fully with Bushwick's Parent Teacher Association (P.T.A.). This cooperation was reported to have led to increased attendance at P.T.A. meetings by the parents of bilingual students. According to attendance data recorded by the resource specialist, one hundred percent of bilingual parents attended the first meeting held that year. Thus the project objective in this area was surpassed at this site.

At Brandeis, parents of program students were part of the school's Advisory Council, and were invited to attend school

celebrations. However, the resource specialist reported that most parents work, which made participation difficult. Attendance at school celebrations and lectures by guest speakers was reportedly high.

STAFF DEVELOPMENT

-- All project staff members will enroll in at least one teacher education course each semester.

During the year under review, the Title VII paraprofessional at Brandeis took one course at Hunter College; nine Bushwick staff members took university courses funded by Title VII. Thus the objective in this area was not met.

In cooperation with the New York State-funded Bilingual Education Technical Assistance Center (BETAC), COM-TECH offered a six-session workshop on the use of the Apple computer to teachers at Bushwick High School. Attendees received an Apple user's manual, an English-Spanish computer glossary, and a floppy disk. Twenty-four teachers attended, of whom twenty were sponsored by Title VII.

Both Bushwick and Brandeis were planning and implementing a variety of ways to use computers for educational purposes. For example, foreign language teachers at Bushwick were able to use computers to correct their exams.

CULTURAL AWARENESS AND ATTITUDE TOWARD SCHOOL

-- Seventy-five percent of all target students will demonstrate an improvement in attitude toward one's heritage as indicated by results on a appropriate Language Cultural Heritage Attitude Scale, tabulating growth from pre- to posttesting and ascertaining the

percentage of students gaining one scale point or more on a five-point scale.

-- Seventy-five percent of all target students will demonstrate an improvement in attitude toward school as indicated by results on a five-point scale inventory to measure interest in continuing education beyond their present grade.

Promoting cultural pride, improving attitude toward school, and enhancing academic interest were among COM-TECH's chief goals. At both Bushwick and Brandeis, the enrichment center, which provided computers for students' use and organized special programs and trips in cooperation with COM-TECH's central office, was particularly important in realizing these goals.

The enrichment centers operated differently at each site. The Bushwick center was in operation since COM-TECH was launched in 1984, and, as proposed, the resource specialist was able to devote all her time to it. Housed in a small room, the center was open for computer use from the second through the ninth period. It had two computers, a printer, and a modem connected to the New York University Center. (The latter allowed project students to communicate with graduate students from N.Y.U.) In addition to computer equipment, the center also had a small library of Spanish literature, reference books, and college-orientation materials.

During a visit by a member of the evaluation team, students were observed studying word processing programs and writing business letters. According to the resource specialist, students also visited the center for tutoring, counseling, and to find

out about project-sponsored extracurricular activities such as field trips and contests. For example, four students participated in a contest about Argentina sponsored by the Sociedad Interamericana to celebrate Pan American Day. The resource specialist provided the students with some of the materials they needed to prepare their entries. Several other students were reported to have participated in a contest sponsored by the National Association for Bilingual Education.

COM-TECH's Bushwick site also had a very full schedule of trips and other extracurricular activities. Among the places visited were the Statue of Liberty, American Telephone and Telegraph company headquarters, the Intrepid Sea/Air/Space Museum, the Federal Reserve Bank of New York, and the New York Stock Exchange. Most of these trips included a walking tour of the environs of the institution that was visited. For instance, the visit to the Federal Reserve Bank of New York included a walking tour that stopped briefly at and discussed City Hall, New York City's first electric power plant, Newspaper Row, and Louise Nevelson Plaza. Bushwick COM-TECH also organized a visit to Brooklyn College, and, in cooperation with students from New York University, a Career Day. All these activities were reportedly very popular with project students.

At Brandeis, delays in installing COM-TECH's computers had been overcome by 1985, and the resource center was in full use during the year under review. Although it was shared with another bilingual program, the room housing the enrichment center

was quite large and would have provided sufficient space for both activities had it not been cluttered with several large lathes left over from the room's former use as a machine-shop classroom. Unfortunately, unlike Bushwick, the resource specialist at Brandeis was forced to divide his time between project-related activities and classroom teaching; consequently, the resource room was under-utilized.

When interviewed by a member of the evaluation team, COM-TECH students at Brandeis said they used the Apples mainly to study E.S.L. using computerized tutorials and to practice word processing and English composition by writing business letters. The resource specialist said that project students were encouraged to use the facilities of the resource room collaboratively rather than competitively. Students interviewed at the center said they liked it very much, and that the resource specialist and paraprofessional were helpful to them in a wide variety of ways, ranging from computer instruction to personal and vocational counseling.

The Brandeis site also organized a schedule of trips for program students. These included trips to Philadelphia, to a French restaurant, and to the Intrepid Sea/Air/Space Museum. A trip to the United Nations was also being planned when a member of the evaluation team visited the school.

The two program objectives in this area could not be assessed as proposed since no data were provided.

ATTENDANCE

-- As a result of participation in the program, students' attendance will be significantly higher than the attendance of mainstream students.

The Bushwick site used a computerized system to keep track of students' programs, grades, and attendance. Students with poor attendance records were contacted by project staff members. According to the resource specialist, at least five project students whose absences were due to the need to work were kept from dropping out because she, in cooperation with Bushwick's Outreach Student Services program, had helped these students locate part-time jobs after school hours and on weekends, rather than during the regular school day. Project staff members also reported that their counseling had also been instrumental in keeping a highly talented overage student from dropping out for personal reasons.

Project students at Bushwick who held outside jobs or worked at the resource center were able to obtain credits for life experience through the Board of Education's part-time cooperative education training program. Although this program had been in existence at the school for several years, not until the COM-TECH resource specialist completed the necessary paperwork had it been applied to Hispanic students.

Twenty-six program students were reported to have graduated from Bushwick in June 1986. Of these, 20 went on to branches of City University. Two of the remaining six went to the University of Puerto Rico, and the rest attended branches of the State

University of New York. Five program students were reported to have graduated in spring of 1987. Of these, three went on to college.

The Bushwick resource center helped organize an informal association of ex-COM-TECH students who had graduated from Bushwick. Some of them were reported to have maintained regular contact with the center, while others called for advice on such matters as financial aid for college or vocational study.

The resource center at Brandeis also monitored students' attendance and contacted the parents or guardians of students with excessive absences. However, the principal said that there seldom was a need to initiate such contacts because project students had a very high attendance rate. Dropping out, however, was a danger among students who lived with relatives other than their parents, or who had rejoined their parents in this country after several years of separation. These students frequently experienced intense intrafamilial conflict. They reportedly often were eager to drop out and get a full-time job to enable them to rent an apartment of their own. Project staff members said that in such instances they made family visits to try to help resolve the problem and keep the student in school.

Attendance Outcomes

Since the school's attendance rate includes the attendance of program students, statistical significance between program and school attendance was determined through the application of a *z*-

test for the significance of a proportion.* This procedure tests whether the difference between one proportion (the program's attendance) and a standard proportion (the school's attendance) is greater than what can be expected by chance variation.

The attendance rate of program students at Bushwick High School was 87.2, 13 percentage points higher than the schoolwide attendance (75.7). At Brandeis, the attendance rate for program students (94.7) was 16 percentage points higher than the schoolwide rate (78.3). The $z$-test results ($z$=4.18 and 3.82 respectively) indicate that the differences in attendance rates are statistically significant ($p \leq .01$). Thus, the program objective was met.

CURRICULUM DEVELOPMENT

Although not a specific project objective, the resource specialists at both sites were developing curricula in a number of subjects. The resource specialist at Brandeis was working on French Creole curricula in math and science. The resource specialist at Bushwick had developed curricula on computer use. She had also assembled a large collection of materials and textbooks on science, social studies, and math which she intended to use to develop Spanish-language curricula that would comply with New York State Regents regulations. Project staff were also reported to have participated in the development of curricula by

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*Bruning, J.L. and Kintz, B.L.; Computational Handbook of Statistics; (Glenview, Illinois: Scott, Foresman and Company, 1968).

the Title VII Central Programs office during the summer of 1986. Several of these curricula were introduced at Bushwick and Brandeis.

## IV. CONCLUSIONS AND RECOMMENDATIONS

The chief strengths of Project COM-TECH at both sites were its resource/computer center and its well-qualified, highly motivated staff. In addition to their educational functions, at both Bushwick and Brandeis, the paraprofessionals and resource specialists were unofficial advisors and counselors to project students. In addition to their expertise in computer use and content areas, they played an important role in bridging the gap between project students' native societies and cultures and the American environment.

At both schools, the resource/computer center was "home base" for project students. However, largely because the resource specialist at Bushwick was able to devote full time to the center (as envisaged in the project proposal), the resource/computer center at this site was more effective than the one at Brandeis in attracting students, developing their cultural pride and desire to succeed academically, and providing computer training.

Although the program coordinator visited them frequently, the two sites seemed somewhat isolated from each other. The project as a whole might have benefited from face-to-face meetings between the staffs of the two sites.

The project met its achievement objectives in English as a second language, content-area courses, parental involvement, and student attendance. The objectives for native language achievement and increased improvement in attitudes toward school

and native heritage could not be assessed as stated because data were not provided. The objective was not met for staff development.

The following recommendations are offered as suggestions for improving Project COM-TECH's future operations:

- The resource specialist at Brandeis should be freed of his teaching responsibilities so that he can devote all his time to the resource/computer center, as envisaged in the project proposal.

- The functioning of the project at both sites might benefit if the resource specialists and paraprofessionals had an opportunity to meet face-to-face to share their experiences and ideas. Because of the constraints of distance, time, and finances, meetings might be scheduled at the central office in the summer, when the resource specialists are there in connection with curriculum development activities.

- Lack of space for the computer/resource centers was a problem at both Brandeis and Bushwick, especially the latter. It is recommended that the Bushwick administration try to find larger quarters for their center, and that the Brandeis administration remove the lathes cluttering their center.

- Data to evaluate the proposed objective in the area of native language achievement should be provided as

proposed.

- The project should revise its objectives in E.S.L. and the content areas to reflect those commonly used by Title VII high school programs in New York City.

# V. APPENDICES

APPENDIX A

Passing Rates in Content-Area Courses
at Brandeis

| Course | FALL | | SPRING | | | |
|---|---|---|---|---|---|---|
| | Number of Students | Percent Passing with 75% | Number of Students | Percent Passing with 75% | Overall Passing With 75% | Overall Passing With 65% |
| Mathematics[a] | 61 | 41.0 | 72 | 29.2 | 34.6 | 65.4 |
| Science[b] | 58 | 44.8 | 54 | 46.3 | 45.5 | 76.8 |
| Social Studies[c] | 65 | 46.2 | 73 | 38.4 | 42.0 | 85.5 |
| Business/ Vocational[d] | 9 | 55.6 | 18 | 38.9 | 44.5 | 74.1 |
| Overall Passing Rate per Semester | | 44.5 | | 37.3 | 40.7 | 75.9 |

• Overall, the objective of 75 percent of the students achieving a 75 percent passing grade was not met.

APPENDIX A

Passing Rates in Content-Area Courses
at Bushwick

| Course | FALL Number of Students | FALL Percent Passing with 75% | SPRING Number of Students | SPRING Percent Passing with 75% | Overall Passing With 75% | Overall Passing With 65% |
|---|---|---|---|---|---|---|
| Mathematics[a] | 125 | 23.2 | 136 | 25.7 | 24.5 | 57.5 |
| Science[b] | 55 | 18.2 | 40 | 25.0 | 21.0 | 62.1 |
| Social Studies[c] | 141 | 38.8 | 136 | 45.6 | 41.8 | 78.3 |
| Business/ Vocational | 61 | 55.7 | 67 | 53.7 | 54.6 | 93.7 |
| Overall Passing Rate per Semester | | 33.2 | | 37.7 | 35.4 | 71.8 |

• Overall, the objective of 75 percent of the students achieving a 75 percent passing grade was not met.

APPENDIX B

# APRENDA INGLES GRATIS

EDUCATIONAL ENRICHMENT CENTER
TITLE VII PROJECT COM-TECH
BUSHWICK HIGH SCHOOL N.Y.C. BOARD OF EDUCATION

## en la:
## Escuela de Sta. Brigida
438 Grove Street Brooklyn. (718)821-1477
Lunes y Jueves de 7pm a 9pm
a partir del:

## 17 de Noviembre de 1986

## INSCRIBASE AHORA
## en la:
## Parroquia de Sta. Brigida
409 Linden Street Brooklyn. (718)821-1690

Diariamente de: 9am a 8:30pm

Bushwick High School y Project COM-TECH Title VII auspician este programa y tienen el agrado de extender sus servicios a la comunidad.
Se agradese al Padre James Kelly su invaluable cooperación con este programa.

Preliminar lesson: Determine the students' level of English

Topic: In the classroom

Lesson 1: The Family
Lesson 2: Professions and Occupations
Lesson 3: University and College Studies
Lesson 4: The Seasons and Weather
Lesson 5: The City and its problems
(N.Y.C., Immigrants,"Puertorriquenos",and others, other stress and tensions.)
Lesson 6: Entertainment
Lesson 7: Daily routine
Lesson 8: Sports
Lesson 9: Foods and Beverages
Lesson 10: Friends and Sweethearts
Lesson 11: Travel and Trips
Lesson 12: Art and Literature
Lesson 13: Holidays and Anniversaries
Lesson 14: Health and The Human Body
Lesson 15: Feelings and Emotions
Lesson 16: The Home
Lesson 17: Nature
Lesson 18: Shopping

RAQUEL R. WEISSBERGER
[illegible]
TITLE VII PROJECT COM-TECH

The Sounds of Vowels
The Sounds of Consonants
Word Stress
To be, subjects and pronouns
Negation
yes/no/don't/do

EDUCATIONAL ENRICHMENT CENTER
TITLE VII PROJECT COM-TECH
BUSHWICK HIGH SCHOOL N.Y.C. BOARD OF EDUCATION

The Cardinal numbers 0-30
The Present Tense
Articles and Nouns: Gender
Interrogative Words
(something about Brooklyn)

Adjectives
Verbs to be, to do
Contractions don't, can't, etc.
(N.Y.C., Manhattan)

Cardinal numbers 31-100
Telling Time
Verbs (present) past tense
Demostrative adjectives
( visit to a Museum)

Irregular Verbs
Dates
Idiomatic Expressions with (to have)

The Students will describe their country of origin.

Possessive Adjectives
Direct object pronouns
Indiect object pronouns
Verb tense continues
In the park, (the barrio) the neighborhood.
Direct & Indirect object pronouns in the same sentence.
The Hispanos in the U.S.A. ( composition and dialog in English)

RAQUEL R. WEISBERGER
Educational Enrichment Specialist/Coordinator
TITLE VII PROJECT COM-TECH